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# Pennsylvania Department of Education

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COMMONWEALTH OF PENNSYLVANIA  
**DEPARTMENT OF EDUCATION**  
333 MARKET STREET  
HARRISBURG, PA 17126-0333

## **Educational Technology Plan**

**September 25, 2006**

**Entity:** Mt Lebanon SD

**Address:** 7 Horsman Dr  
Pittsburgh, PA 15228-1107

**Phone:** (412) 344-2077

**Contact Name:** George Wilson

## **Core Purpose**

### **Mission**

To provide the best education possible for each and every student

This mission describes why the organization exists. It is a statement of the basic purpose of the organization as defined by its constituents. This means that the Mt. Lebanon School District will provide the best education possible given local resources, and state and federal constraints. This means that the Mt. Lebanon School District provides the best education possible for each individual student and every or all students collectively. Mt. Lebanon School District constituents will know this mission has been accomplished when the student learning targets have been accomplished.

### **Vision**

To provide the best education possible for each and every student

### **Shared Values**

Education should be intellectual in its direction, individualized in its approach, demanding in its efforts, character-building in its nature, humane in its treatment, and scientific in its method.

In accordance with the District's mission to provide the best education possible for each and every student, we believe that:

- Every individual has a unique combination of abilities and attributes that when recognized, nurtured and challenged help him/her achieve his/her full potential;
- Each individual has worth and deserves dignity and respect;
- All students can be successful learners;
- Successful learning builds self-esteem;
- Excellence in education is worth the commitment of time, effort and money;
- Learning is most effective in a safe, caring environment, taught by highly qualified teachers;
- High expectations directly affect performance;
- An educated citizenry is vital to a strong foundation for a democratic society;

It is the policy of the Board to promote the philosophy that education is a continuous process that involves the acquisition and application of knowledge, skills and a responsible attitude toward learning. The District will be organized to provide varied and adaptable educational programs to accommodate students who vary in ability, aptitude, cultural background and motivation.

## Needs Assessment

### Overview

Our district is comprised of eleven distinct buildings, all connected by a ring-redundant-topology, fiber-optic WAN. This infrastructure hosts our telecommunications services as well as our ethernet traffic. Our main telecommunications equipment, data center, and server farms reside at the district offices in the High School building. We view up-to-date technology as a critical goal in our district's strategic plan. We ensure that up-to-date technology by focusing on the three components of technology: Hardware, Software, and Support.

### Hardware - Telecommunications

Mt. Lebanon recently completed renovations in all seven of our elementary school buildings which brought our building phone systems all onto the Alcatel platform. Every classroom in the district has at least one handset that can be used for telephone and intercom interactions. There is room for improved capabilities within the High School's telephone subsystem with respect to intercom.

The district utilizes cellular phones with Push-To-Talk (PTT) capabilities for communication during emergencies as well as during the course of business. We currently maintain approximately 80 handsets, though that number may increase over the short term as prices drop and as we find additional uses for them throughout our district.

In addition to our in-house technician, our PBX telecommunications system is serviced by a single service provider. This is the ideal configuration for us in the future, since the primary telecommunications equipment for all of our buildings is located at our district offices. Each building's telecommunications equipment utilizes dedicated strands of fiber on our ring, though these strands are configured in a star-topology. Each building also has at least two traditional "copper" lines for emergency use in the event of a failure on our fiber lines. There is potential in the next three years for increased redundancies to be programmed into our existing topology that would lessen the telecommunications impact of an outage at one of our buildings.

### Hardware

Our computers are from a single vendor to facilitate maximum efficiency in support of these devices. As of the Summer of 2006, all of our teacher, administrator, and student machines will be from a single vendor. Our PC's and laptops have an average age of two years and are rotated out of the district on a four year cycle. With approximately 5400 students and approximately 1700 Student PC's, our current district-wide Student-to-Non-Teacher-PC ratio is approximately 3:1. Taking this ratio lower is always a priority, as we believe it signifies greater student access to computing devices. Budgetary concerns for the cost of additional hardware as well as its support balance our equation every year as we reassess our inventory levels. Since 2003, we have increased the number of our Student PC's by approximately 400%. Additionally, we recognize that many school districts track and publish their "Student-to-PC" ratio, including teacher PC's in their calculations. We do not attach much importance to this ratio, as we mandate that students not utilize teacher PC's for security reasons. We believe that the qualification of "Non-Teacher-PC" is an important and valuable distinction and we plan to make purchasing decisions with this ratio in mind and not the broader "Student-to-PC" ratio.

We maintain a "Lit Fiber" ring that connects our buildings in a redundant circle topology for data and additionally contains strands that handle our voice traffic in a star topology with our central telephonic computing devices residing at the High School. Each building has redundant copper lines that will provide service in the event of a power outage to our ring. The bandwidth of our ring is 1Gbps.

Our computers are either wired to our network at 100Mbps or wirelessly connected at 54Mbps. Every data closet is connected to our backbone by 1Gbps fiber. We utilize a RADIUS server to authenticate our wireless-G devices to the network and we filter our Internet access (10Mbps). As technology advances and costs are driven lower, our backbone is configured to accept 1Gbps network switches and PC NICs which would facilitate greater network bandwidth for our wired PCs which already come standard (as per our district hardware standards) with Gb NICs.

Each elementary school has six student PC's in every instructional classroom. In addition, as opposed to a traditional fixed computer lab, each elementary school has a mobile laptop cart (COW) with 24 laptops. Each cart is equipped with its own wireless access point. We also have 2 mobile laptop carts in each of our middle schools (one with 24 and one with 12 laptops). In addition to a number of fixed labs at the High School, we also have two mobile laptop carts, each with 24 laptops. The district looks forward to the advent of "order of magnitude" less costly personal computing devices such as the Ultra Mobile PC (UMPC). It is our belief that if and when these devices are available at approximately half of the cost of laptops, we will see a great increase in the quantity of our wireless assets at all of our schools.

Every elementary and middle school classroom is designed to have a television set. In these buildings, every TV is connected to the teacher PC either through an external device or through a double-output graphics card in the PC. The High School has some rooms with TV's, and a number of "floating" TV's on carts that are shared within departments. The status of classroom TV's in the High School is a definite area for improvement in the coming years.

A number of classrooms have a combination of LCD projectors, document projectors, and interactive whiteboards. As prices continue to come down, making these devices more affordable, we recognize that an increasing number of these value-adding devices will be purchased, utilized, and maintained by our district.

Technology department funds provide for network laser printers on every floor of every building. In addition, every PC lab has a networked laser printer. Inkjet printers exist in our schools, but due to their short life and high cost of ink, they are funded by non-department funds just as other classroom consumable goods are funded.

### **Software**

A district-wide software platform consisting of Windows XP Professional and Microsoft Office Standard exists on every machine in our district. In addition to this standard loadset, a number of specialized software packages exist on our network:

- Mt. Lebanon maintains a custom-designed, web-based interface called the Dashboard which facilitates communication between our teachers, students, and parents. It is the parent component which continues to differentiate our system from systems that are commercially available. Homework is required to be posted on the Dashboard by our High School and Middle School teachers. The Dashboard is currently the sole source of quarterly progress report data for our students, saving the district approximately \$6,000 per year. There are great opportunities for improved service through the Dashboard over the next few years including sole-source of quarterly grades, increased building-wide announcement utilization, "eFolders" which allow students to port files back and forth between the school and their homes, electronic "dropboxes" for students to submit files to their teachers, daily or weekly reporting of gradebook activity for each student, etc. This list is constantly growing and receiving attention from our administration to execute on as much of it as we can within the parameters of cost and policy.
- Mt. Lebanon also maintains an Intranet website which provides access to templates, help documentation, streaming multimedia, and other resources. This is a very efficient content delivery vehicle. Our challenge is to keep its content fresh and in the minds of our users as the first place to look when they need something. In the future, we plan to publish an Extranet which will be a subset of our Intranet site and accessible via user ID and password from outside of our district.
- Student Information is tracked with a widely supported software package (SASI) and utilized by a large number of users, enabling more to be done with student information by the end user. Gradebooks are kept online with a system that integrates with our student system (InteGrade Pro).

- Finance and Personnel information is maintained in our recently upgraded ProSoft system. We have found this company to be traditionally very responsive to our needs and helpful in assisting our staff in learning how to more effectively operate the system.
- Email accounts are provided to all faculty and staff. Faculty and staff logins are complimented by individual network storage folders which are backed up on a periodic basis.
- Most students in grades 6-12 are assigned login accounts, though there are a number of "lab logins" that are more typically utilized in our labs. We plan to remove these accounts next year and provide every grade 6-12 student with a unique login. We do not provide student email accounts.
- Curriculum software is chosen and purchased by subject area just as textbooks are purchased. The acquisition and installation of software is facilitated by the technology department to ensure interoperability with our systems as well as proper licensing and configuration.

**Support**

The Mt. Lebanon Technology Department prides itself on delivering top-quality technical support to its hardware and software. It is our philosophy that poorly supported hardware and software is no more useful to our students and teachers than out of date equipment and programs. We utilize a self-service work order system that is accessed through our Intranet so that users with problems can make formal requests and follow the status of those requests through resolution. We also strive to maintain adequate staffing levels relative to the number of devices and software titles the district maintains. Additionally, we consistently examine the data collected by our support system in an effort to continuously improve performance. We are also examining the potential for short customer service surveys that our users can fill out after work orders have been completed.

**Conclusion**

While we are very proud of our current technology offerings, we are never satisfied with status quo. As a product of our Up-to-Date Technology quality team, we are building a process to continually evaluate new technologies for the district. Our department members, curriculum supervisors, and teachers frequently attend conferences and seminars where new ideas are presented. Our challenge in defining our "new technology" process is to effectively capture these new ideas and put them into our examination process.

## Goals and Strategies

### **Goal: Student Achievement**

*Description:* To satisfy the many stakeholders in the community, the Mt. Lebanon School District will need to provide an education for each and every student that meets or exceeds clearly defined student learning targets. District standards, standardized tests, actual student work, and comparisons with other schools will be used as primary measures of student academic growth and performance. Graduate success, status of colleges and universities attended, student awards and recognitions, surveys, focus groups, student artifacts, and other data gathering approaches will measure the qualitative targets. The community and district staff determined the content and personal standards that students need to master. The most important skills/talents/abilities include technology, communication, interpersonal skills, problem solving, reading and comprehension, the development of a work ethic, mathematics, critical thinking, and an awareness of current global and cultural issues.

The student learning targets/strategies describe in measurable terms what community constituents want the school district to achieve over the next five years. It gives the district clear constituent-driven accountability targets for student learning and a graphic picture of a preferred future or destination that if accomplished, would be a source of community and district pride. The student learning targets describe the "best education" as a total educational experience and one, except for the core subjects of reading, writing, and mathematics, that is not content specific. This means that through offering diverse learning opportunities, every content area, every fine art, every extra-curricular area, and every support service can contribute equally to the accomplishment of the student learning targets.

### **Strategy: Technology**

*Description:* 95% of Mt. Lebanon students master district technology standards

*Educational Practices:*

Activity	Description		Evaluation Procedure	
Process Standardization	The team will use the PDSA cycle to standardize the process and to develop improvement theories.		Lag indicator data from the eighth grade IC3 assessment.	
Person Responsible	Timeline for Implementation			Resources
Greg Wensell	Start	n/a	Finish	n/a
				\$14,025.00

### **Goal: Support System Alignment**

*Description:* To achieve the district mission, senior leaders must excel at and align strategy development and deployment systems, stakeholder relationship systems, measurement and analysis systems, staff development systems; the core processes of curriculum, instruction, and assessment; all support processes; and internal structures including time, people, and facility usage in order to develop a culture that has the understanding, skills, attitudes, and motivation to accomplish the district mission. In order to align these systems, the district will have to respond to the challenges of diverse student needs, up-to-date technology, balancing the budget, facilities upgrading and maintenance, and special education needs.

**Strategy: Technology***Description:* Up-To-Date Technology:

Achieve and maintain up-to-date technology within the Mt. Lebanon School District in support of its mission to provide the best education possible for each and every student.

*Educational Practices:* Artful Use of Infrastructure, Continuous Learning Ethic, Quality Leadership, Quality Teaching

Activity	Description	Evaluation Procedure		
Hardware	Ensure up-to-date hardware in the district through the establishment of standards, processes, and lead/lag indicators to demonstrate success.	Lead indicators: Average PC Age, Students per Non-Teacher PC, PC Utilization Procedure: Annual review (pre-budget) of every device, district-wide for consideration of continued utilization or replacement.		
Person Responsible	Timeline for Implementation			Resources
Chris Stengel	Start	n/a	Finish	n/a
				\$648,951.00

Activity	Description	Evaluation Procedure		
Software	Ensure up-to-date software in the district through the establishment of standards, processes, and lead/lag indicators to demonstrate success.	Lead indicators: Average Title Age (weighted), Titles per PC, Total Titles, Title Utilization Procedure: Annual review (pre-budget) of every software title and loadset, district-wide for consideration of continued utilization or replacement.		
Person Responsible	Timeline for Implementation			Resources
Chris Stengel	Start	n/a	Finish	n/a
				\$182,912.00

Activity	Description	Evaluation Procedure		
Support	Ensure up-to-date support in the district through the establishment of standards, processes, and lead/lag indicators to demonstrate success.	Lead indicators: Number of PC's per Technician-FTE, Turn-Around Times, Number of Work Orders Completed per week/month Procedure: Annual review (pre-budget) of every technician's results, abilities, and training opportunities.		
Person Responsible	Timeline for Implementation			Resources
Chris Stengel	Start	n/a	Finish	n/a
				\$130,101.00

Activity	Description	Evaluation Procedure		
Utilization	Ensure maximum classroom utilization of technology through the establishment of standards, processes, and lead/lag indicators to demonstrate success.	Throughout the year, assessments of teacher utilization of technology in the classroom will take place. Results will be used to plan initiatives, training, and hardware/software acquisition.		
Person Responsible	Timeline for Implementation			Resources
Curriculum Supervisors	Start	n/a	Finish	n/a
				\$78,082.00

## Staff Development

### Overview

The professional development of our Technology Department staff as well as the professional development of our faculty and staff are both very important to the success of the District. Our plans to facilitate this professional development are distinct for each group:

### Technology Department Staff

Our department staff is required to annually research and prepare formal requests for training opportunities to keep their skills current with the hardware and software we bring into this district. Formal offsite training, online training, video conferences, books, etc. are all utilized. Successful completion of each department staff member's personal development plan has direct impact on their annual evaluations.

### Non-Teaching Staff

Our district's support staff has continuous needs for training on the newest equipment and software that we purchase. Traditionally, there was little formal process for training our staff on these new technologies, unless the technologies came to us with training included (e.g. our financial application). This year, we have created a new position, the Information Technology & Training Specialist. This person will be directly responsible for assessing training needs among our support staff as well as creating and delivering the training, whether it is in a classroom or one-on-one setting.

### Teaching Staff

Our teaching staff has varying levels of technical ability and faces an ever-challenging workplace with new technologies constantly arriving in our District. Even the most "tech-savvy" need training. We plan to perform annual needs assessments through one of our Quality committees, the Staff Development committee. The results of their needs assessments will form the basis for formal in-service training sessions as well as informal sessions. Depending on the nature of these training opportunities, training will be conducted by one or more of the following: IT&T Specialist, third party, vendor, or Instructional Technology Coordinator. Our plan for balancing the abilities of our in-house IT&T Specialist and our Instructional Technology Coordinator is to draw a line between technical proficiency and utilization in the classroom of a technology...the former being the domain of our IT&T Specialist and the latter our Instructional Technology Coordinator. This will allow us to best draw on the skillsets of each and provide the most effective in-house training sessions to our teaching staff. Both our IT&T Specialist and our Instructional Technology Coordinator are also skilled in drawing on the resources of our teaching staff who might have proficiency in certain areas in order to convey that proficiency to their fellow teachers.

## Budget

### Summary: Potential Funding Distribution

Funding Source	Year 1	Year 2	Year 3	Total
010 - ADMINISTRATIVE BUDGET	\$961,964.00	\$0.00	\$0.00	\$961,964.00
020 - CURRICULUM DEVELOPMENT AND INSTRUCTIONAL IMPROVEMENT SERVICES	\$78,082.00	\$0.00	\$0.00	\$78,082.00
040 - INSTRUCTIONAL MATERIALS SERVICES	\$14,025.00	\$0.00	\$0.00	\$14,025.00
<b>TOTAL</b>	<b>\$1,054,071.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1,054,071.00</b>



**Goal: Student Achievement**

To satisfy the many stakeholders in the community, the Mt. Lebanon School District will need to provide an education for each and every student that meets or exceeds clearly defined student learning targets. District standards, standardized tests, actual student work, and comparisons with other schools will be used as primary measures of student academic growth and performance. Graduate success, status of colleges and universities attended, student awards and recognitions, surveys, focus groups, student artifacts, and other data gathering approaches will measure the qualitative targets. The community and district staff determined the content and personal standards that students need to master. The most important skills/talents/abilities include technology, communication, interpersonal skills, problem solving, reading and comprehension, the development of a work ethic, mathematics, critical thinking, and an awareness of current global and cultural issues.

The student learning targets/strategies describe in measurable terms what community constituents want the school district to achieve over the next five years. It gives the district clear constituent-driven accountability targets for student learning and a graphic picture of a preferred future or destination that if accomplished, would be a source of community and district pride. The student learning targets describe the "best education" as a total educational experience and one, except for the core subjects of reading, writing, and mathematics, that is not content specific. This means that through offering diverse learning opportunities, every content area, every fine art, every extra-curricular area, and every support service can contribute equally to the accomplishment of the student learning targets.

Technology	Year 1	Year 2	Year 3	Total	Funding Source
Process Standardization	\$14,025.00	\$0.00	\$0.00	\$14,025.00	040 - INSTRUCTIONAL MATERIALS SERVICES
<b>TOTAL</b>	<b>\$14,025.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$14,025.00</b>	

**Goal: Support System Alignment**

To achieve the district mission, senior leaders must excel at and align strategy development and deployment systems, stakeholder relationship systems, measurement and analysis systems, staff development systems; the core processes of curriculum, instruction, and assessment; all support processes; and internal structures including time, people, and facility usage in order to develop a culture that has the understanding, skills, attitudes, and motivation to accomplish the district mission. In order to align these systems, the district will have to respond to the challenges of diverse student needs, up-to-date technology, balancing the budget, facilities upgrading and maintenance, and special education needs.

Technology	Year 1	Year 2	Year 3	Total	Funding Source
Hardware	\$648,951.00	\$0.00	\$0.00	\$648,951.00	010 - ADMINISTRATIVE BUDGET
Software	\$182,912.00	\$0.00	\$0.00	\$182,912.00	010 - ADMINISTRATIVE BUDGET
Support	\$130,101.00	\$0.00	\$0.00	\$130,101.00	010 - ADMINISTRATIVE BUDGET
Utilization	\$78,082.00	\$0.00	\$0.00	\$78,082.00	020 - CURRICULUM DEVELOPMENT AND INSTRUCTIONAL IMPROVEMENT SERVICES
<b>TOTAL</b>	<b>\$1,040,046.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1,040,046.00</b>	
<b>GRAND TOTAL</b>	<b>\$1,054,071.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1,054,071.00</b>	

## **Monitoring**

### **Overview**

Our plan for monitoring technology implementation and integration are outlined below:

### **Technology Implementation**

The successful implementation of technology in our district hinges on our Up-to-Date technology committee's ability to provide continuous improvement through total quality initiatives. Currently, this committee has completed its systems definition and current situation assessment and is poised to begin on analysis and improvement cycles that will make improvements to the system on a continual basis. The Director of Technology heads this committee.

### **Technology Integration**

With assistance from the Technology Department, the task of monitoring technology integration in our classrooms and lesson plans falls under the guidance of our Curriculum Supervisors and our Coordinator of Instructional Technology. In addition to the Needs Assessments that our Staff Development quality committee will be conducting, our Instructional Technology Coordinator is directly responsible for assessing our district's level of integration of technology into its lessons. Finally, our Building Principals and Curriculum Supervisors are responsible for evaluating teachers' utilization of technology in the classroom on a semi-annual or annual basis (depending on the employment status of the teacher). With these assessments, we believe that we will be able to annually plan to effectively and efficiently increase the levels of technology integration in our classrooms. We expect periodic (lead) as well as end-of-year (lag) reporting on this continuous improvement effort.

### **Evaluation**

Our plan for evaluating the progress and efficacy of our plan's implementation is based on the annual nature of our district's Quality Committees' improvement cycles. We plan to measure each of our five Educational Technology Plan activities using lag indicators:

#### **Student Achievement**

8th grade student performance on the IC3 exam. Target: 95%

#### **Hardware**

Average PC Age. Target: 2 years

Students per Non-Teacher PC. Target: 2:1

#### **Software**

Average Title Age (weighted). Target: 2 years

#### **Support**

PC's per Technician-FTE. Target: 650

#### **Classroom Integration**

Secondary Ed Dashboard Utilization. Target: 100%

Primary Ed Dashboard Utilization. Target: 50%

Primary Ed Classroom PC Utilization. Target: Continuous improvement from baseline

Teacher Evaluations on Technology Utilization. Target: Continuous improvement from baseline

As these activities are reviewed annually, appropriate action plans will be developed based on whether we were able to achieve our targets or not. If the answer is not, the appropriate committee (Student Technology Achievement, Up-to-Date Technology, Curriculum Supervisors) will perform root-cause analysis to determine the appropriate course of action. In concert with this evaluation, the district will annually re-assess whether these goals are still valid goals and whether these targets are still valid targets. Any resultant changes to this Educational Technology Plan will be made as they occur, rather than simply at scheduled resubmission dates.